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# ELECTRICITY'S EFFECT ON GENDER EQUALITY IN RURAL ZANZIBAR, TANZANIA

## Case Study for
## Gender and Energy World Development Report Background Paper

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# 1 INTRODUCTION

This anthropological case study on the introduction of electricity in rural Zanzibar around 1990 discusses to what extent and how women became empowered in the process.[1] What factors contributed to increased gender equality[2] during the uptake of electricity and related appliances – and what were the barriers? Attention is paid to women's opportunities and their ability to influence the shaping of the new technology as compared to men's, as well as women's role in forming new solutions for energy use. A related issue that is analysed is the manner and extent to which the uptake and use of electricity and appliances have enhanced women's social and economic opportunities, their general ability to take action, and their accumulation of wealth, knowledge and other types of resources.

An introduction to Zanzibar and some of the central cultural principles for gender organisation, ideologies and household finances open the case.

# 2 SOCIO-CULTURAL CONTEXT; GENDER IDEOLOGIES AND GENDER ROLES AS PRACTISED

Zanzibar is a semi-autonomous polity and forms part of Tanzania (see Figure 1). The island state has a separate government and its own set of legislation for internal matters.[3] Islam is an important reference point for conduct in rural Zanzibar, although closely entangled with other cultural beliefs and practices. Islam in Zanzibar is characterised by being of a relatively pragmatic kind (Winther, 2008). Ordinary people and local Imams accept that religious duties are not always possible to live up to in practice.[4] When asked about men's and women's responsibilities, people refer to the obligation of husbands to provide for their families. Women's prime responsibility lies in attending to household chores such as cooking, cleaning and care taking. Ideally, they should not be working outside the home, but due to the tough living conditions, it is acknowledged that women need to put considerable labour into farming and firewood and water collection. A rural Zanzibari home (*nyumbani* in Swahili: literally 'in the


**Figure 1: Map of Zanzibar**

[1] This case study is based on anthropological material collected in Zanzibar during 16 months of fieldwork, covering a time span of 15 years. It started in 1991, that is, one year after electricity's introduction in Uroa, the main village under study, and ended in 2006. The main fieldwork (participant observation, interviews, etc.) and an elaborated household survey were undertaken from September 2000 to June 2001. The researcher's various stays in Zanzibar have allowed for first-hand observations of electricity's effects over time. Comparisons with non-electrified villages were also undertaken to strengthen the explanations of electricity's social impact. In addition to the socio-cultural approach, technical and economic data were included in the study. The material (parts of which constituted a PhD thesis) was published in Winther (2008).

[2] The indicators used for gender equality mainly follow those identified in the overall conceptual framework of the WDR 2012, but with the inclusion of three words to highlight socio-cultural dimensions (highlighted in the following): women's and men's equal accumulation of human, *social* and productive capital (endowments); their equal opportunity to realise returns on those assets (economic and *social opportunities* and abilities); and their equal opportunities and abilities to take action and influence outcomes (agency).

[3] Zanzibar's semi-autonomous position within Tanzania reflects its historical, political and cultural associations (as part of the Swahili region in East Africa), with Asian countries of the Indian Ocean through maritime trade and migration. The spread and practise of Islam is an indicator of the Swahilis people's common past. Historians have emphasised the population's ability to adjust to societal changes while maintaining a strong sense of shared identity (Middleton, 1992).

[4] For example, because of poverty, a fisherman will not be condemned if he is unable to return from sea to attend the 1pm prayers as he should. Correspondingly, whereas ideally a woman should be accompanied by a man when going by bus to town (concern for respectability), this is not always the case due to the strain on life here, people say. Confirmed through observations and detailed data, women tend to travel without male company. In the household survey covering 23% of the 480 households in Uroa village in 2000-01, 72% of women said they had travelled alone or with a minor on their last trip to Zanzibar Town, thus without the company of a male adult.

house') is not perceived as complete without the female cook/wife/mother sitting by the three-stone hearth. There is a close association between the person, the technology, and the fireplace which makes these entities appear inseparable and resistant to change.[5]

A large majority of women in many coastal villages in Zanzibar also put considerable effort into farming seaweed, an economic activity that was introduced in Uroa, the main village under study, around 1990, which coincides with electrification. Although the money women make from this physically demanding occupation is considerable[6] –though also highly variable due to a volatile world market for seaweed– people rarely acknowledge this monetary contribution made by women to the household in the sense of modifying their perceptions of gender roles and responsibilities. When asked who in the family purchases the food, both men and women responded that this is the husband's duty. However, detailed records of the spouses' expenditures show that men tended to buy the staples and main foods (e.g. rice, beans, flour, potatoes, and fish), while women spent money on other foods (e.g. spices, tea, tomatoes, onion, garlic, oranges, bananas) and also on children's clothes, medicines, etc. When confronted with this pattern, people referred to women's contributions as 'gifts' (Winther, 2008:159). The ideology of males as providers is strong, despite the evidence of a practised pattern where both genders contribute to purchasing the family's food and other items.

Also explained by referring to Islam, there is a highly individualised system of ownership of household possessions: people would quickly respond that an item (e.g. a bed, television set or even a cup) either belonged to the wife or the husband, but never to both. Also highlighted in theory, but not always a reality, every person is said to have a right to decide on her/his income and to spend money as he/she likes. This point is important in terms of providing legitimacy for individuals (e.g. women) to make their own decisions as to what appliances to buy. In practice, things are not that straightforward.

Finally, and leaving less room for situational interpretations, there are Islamic informed rules of inheritance and divorce which provide men with more rights than women. As a result, although there are exceptions, women do not inherit or own houses, which are the most common enduring assets (apart from a few coconut trees, also owned by men) in this place. Farm land is held as communal property.[7] Women tend to move into their husband's house at the time of marriage and nearly half of those interviewed came from other Zanzibari villages.[8] Women also must leave the house in case of a divorce, which is quite common and which is more easily obtained by men than women.[9] These regulations and practices systematically produce gender inequality in all the three mentioned senses: by way of reducing Zanzibari women's ability to accumulate wealth, their economic and social opportunities to make a return on investments, and their potential to influence

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**5** The hearth and the woman cook can be considered as a centre for the physical and spiritual strengthening of bodies and for the social and metaphorical reproduction of the family and the wider kinship group (Winther, 2008: 211-12).

**6** Women's and men's cash earnings in Uroa were partly documented in 2001 through data collected in the household survey (showing that about 80% of women in the village farmed seaweed), through figures on total sales obtained through the seaweed company and through the records of sales kept by the secretary for the village fish market (daily auctions). In April 2004, women's income from seaweed farming constituted about 50% of the total amount of earnings from fish sold by Uroan men at the village market (Winther, 2008: 86).

**7** In these coastal coral rag areas, individuals/families obtain the right from the village management to farm pieces of land for a certain period of time (shifting cultivation). The exception is coconut trees (and their immediate surroundings), which are private property. Forty percent of families in the survey kept a field for farming in 2001. Interestingly, when asked whose occupation/work (*kazi*) this was, both men and women tended to say it was the man's work only. Upon observing that women in practice also farmed the fields, I asked why they had not denoted this as work when they had been interviewed for the survey. The typical answer was: "*I only help a little*". Time-wise, this 'helping' was often considerable according to my observations, but still, women's labour was not regarded as significant enough to be labelled as work in a survey. This points to the advantage of supplementing surveys with ethnographic data on people's practices for obtaining a nuanced picture of notions and what they mean, and, in turn, the gendered patterns of everyday life.

**8** In the 2001 survey, 43% of 106 women said they had grown up in other Zanzibari villages.

**9** The divorce rate in Uroa was about 30-40%, as observed in 2001 in the ward of 60 households where I was staying). Only a few elderly women showed signs of perceiving the practices related to inheritance and divorces as being unjust. They said the only way a woman could have a good life in the long term was to get herself her own house. Otherwise, the reference to the prescriptions of the Quran dominated and both men and women seemed to not question the male-biased rules of inheritance and divorce and their effects.

on decision-making. The institutions guiding inheritance and divorce also have a direct impact on women's potential empowerment from electricity, as I elaborate below.

From this brief analysis of the socio-cultural context and gender roles in Zanzibar, some methodological implications may be noted. First, people tend to describe and explain gender roles and responsibilities (ideologies) in certain ways while practising them differently (see also Henning, 2005; Wilhite and Wilk, 1985). A focus on discrepancies (e.g. why is there flexibility related to people's failure to adhere to some rules while other rules are practised more strictly?) might be particularly revealing for understanding power relations and hierarchies at work. As I aim to show, insight in the socio-cultural context, obtained through a variety of methods, enhances the understanding of the gendered conditions and effects of interventions such as the arrival of modern energy. It follows that socio-cultural factors are a key to forming new, sustainable energy solutions.

# 3 ELECTRICITY'S INTRODUCTION IN RURAL AREAS: WOMEN TARGETED AS PROJECT STAFF AND BENEFICIARIES OF PUBLIC SERVICES

Electricity was introduced in Zanzibari villages from 1986 onwards through an intervention supported by Norad.[10] The project strategy included a gender focus in two particular ways. First, as part of the project's capacity-building activities, an equal share of women and men were invited to participate in a course in surveying. Based on the results from the final exam, individuals would be hired as staff in the project. From a gender equality perspective, this strategy was successful (see Box 1).

***Box 1: Recruiting women surveyors for the rural electrification project***

**In 1991, the rural electrification project in Zanzibar needed to recruit and train landscape surveyors. They invited 24 participants to attend a course in surveying and put as a requirement that there should be 50% of each gender. Based on the results from the exam towards the end of the course, the 14 best candidates were offered a job in the project. Of these, all 12 women and two men were included. Fifteen years later, several of these women were still working with the electricity company, holding important positions. The company otherwise has an over-representation of men among their technical staff (Winther, 2008).**

Secondly, it was project policy to provide electricity for public services, of which women were considered to be the prime beneficiaries. Today, as many as 80% of the rural population lives in areas with access to electricity (Winther, 2006); this implies that rural water pumps, schools and health centres are likely to be connected. The new water supply has brought positive health effects in terms of providing cleaner, non-salty water (through deeper boreholes located farther away from the sea) and reducing women's physical burden through the taps located close to people's domiciles. Women have also had time-saving benefits from these changes. With the arrival of water taps in the villages, conditioned by the provision of electric water pumps and pipes, Uroan households (female members) have on average saved 20-25 hours per week, that is, about three hours per day.[11] Women partly used the time they had gained for productive activities, and partly

[10] In 1978, Zanzibar's largest island, Unguja, became connected to the grid on the mainland of Tanzania via a submarine cable (45 MW). The access to stable supply in Zanzibar induced a request for support from the Norwegian government to help expand the electricity grid to rural areas. The rural electrification project lasted from 1986 to 2006. Pemba, the second largest island in Zanzibar, was also included in the rural electrification project, but was not connected to the mainland grid until 2010. Here, power supply relied on diesel generators. The Zanzibari government is the owner of Zanzibar Electricity Corporation (ZECO), the electricity company on the two islands.

[11] This calculation is based on data collected in Uroa in July 2005 when the water pump had failed for some months (compared when the situation when the pump was in order). I also used data from a range of interviews in non-electrified villages in 2001.

for relaxing in the evenings.[12] Also, as a consequence of the shift from wells to tapped water, parents started sending their daughters (who had previously helped their mothers collect water) to school to the same extent as sons.[13] Provision of electricity has therefore had a significant and positive impact on the next generation of women and their opportunities to acquire knowledge, formal education and more economic and social wellbeing than their mothers.

Electrified health centres equipped with refrigerators for storing medicine, boilers for sterilising needles and tools and light today provide substantially better services than before. The whole population and women in particular, have saved time and costs on transport, and have obtained better health because of these shifts. For example, women in labour may now get tended to at night time in the village. Often the alternative was to travel to town[14] and spend several weeks with relatives waiting for a birth to begin. Finally, electric light has allowed the local school to organise night classes for pupils in the month before important exams. Uroans put considerable effort into the task of educating the young generation of both genders, and they use electricity to enhance this endeavour.[15] Of note is that the improved quality of these public services, which in Zanzibar are free in principle, has also depended on other well-functioning surrounding systems of provision.

At night time, the greenish light radiating from the long fluorescent tubes inside the mosques marks the presence of Islam in Uroa. The sacred buildings are primarily attended by men who come to pray.[16] Another type of local, communal use of electricity occurs at the time of weddings and funerals, when light, tape recorders and speakers (drawn from the homes of individuals) mark the centre of events which may go on for three days. Women enjoy these long hours of socialising which attract relatives to the village and which are always performed in gender-specific groups. Reflecting the gender ideology of male superiority, men are always served first on such occasions. Hinting at her feeling of being treated unjustly in this way, one of my acquaintances whisperingly complained to me while we were attending a wedding that "*the food is already cold*".

Uroa is the only village with street lighting in rural Zanzibar. The lights provide a sense of moral safety (concern for respectability) for women when walking outdoors after darkness, which they and men do more since electricity's coming. The street light is also said to provide an environment with a higher degree of protection against evil spirits.

## 4 HOW A PARTICIPATORY PROCESS ENDED UP EXCLUDING WOMEN'S PRODUCTIVE INTERESTS

The electrification process in Uroa in 1990 has been described as a success story in terms of the high level of local participation and the particular outcomes of the project, such as the street lights and a high number of domestic consumers (Winther, 2008).[17] A sense of ownership and pride about this project could still be felt in the village a decade later. However, contrary to the emphasis

[12] Before the shift in water supply, women had a 16-hour working day (observed in 1991) and in 2001 this amount had been reduced by 2-4 hours (depending on whether handicraft and other small activities in front of the television are considered to be work). Realising that women's participation in female arenas such as a communal well could also potentially have a positive, social meaning to them, I repeatedly asked for women's views on this. Nobody ever confirmed that they missed the trips and the time they had spent pulling buckets.

[13] In 2000-01, 93% of girls in Uroa aged 7-17 attended school; 95% of boys did.

[14] Uroa is located 45 km from Zanzibar Town. Buses/vans today run every hour.

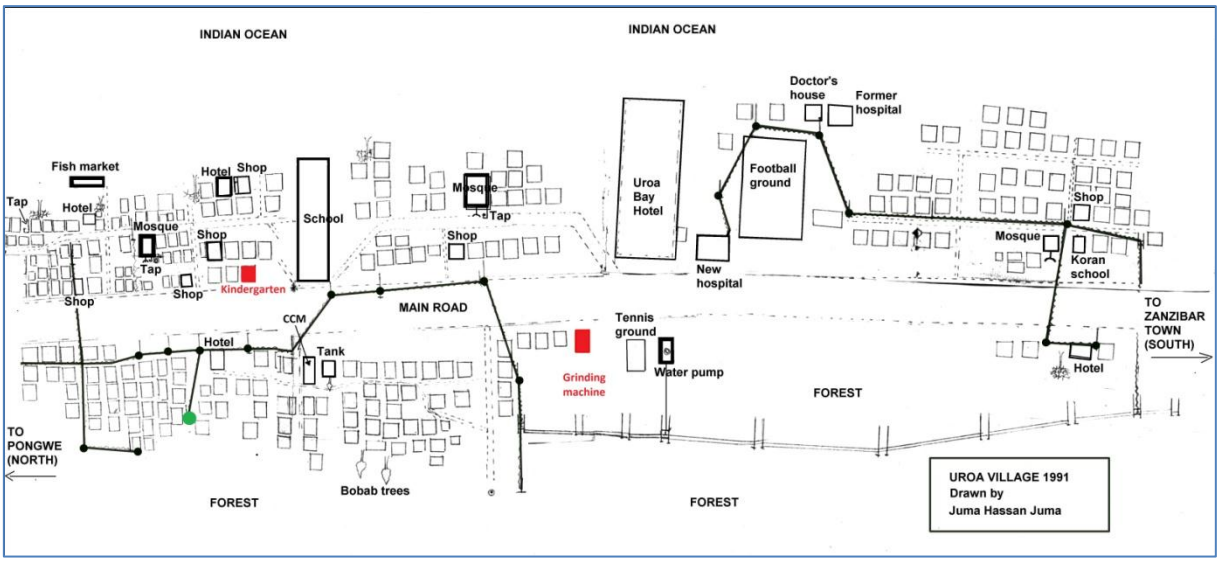
[15] In contrast to what many Uroans claimed, children rarely did homework by the use of electric light in the evening. The reasons for this are not only that children tend to frequent houses where there are television programmes to watch in the evening. Also the general lack of school books is relevant, which makes pupils depend on teachers for rehearsing/learning. The better-off families sent their children to private teachers for tutoring in the evenings.

[16] Islamic leaders cherish electricity's contribution to enhancing the teaching of the Quran: light for reading and increased cleanliness/purity; running water for increased cleanliness/purity; radio and television programmes and tape recorders for listening to/watching Arabic scholars; and speakers for waking men up for the 5 a.m. prayers.

[17] Twenty percent of private households on Unguja, Zanzibar's largest island, have obtained an electricity connection. Uroa village had a connection rate of 33% in 2001 which increased to more than 50% in 2006 (ZECO and census data, referred to in Winther, 2006 and 2008).

that was put on women's needs and inclusion on the overall project level, at the village level, only men were involved in the process. Here, women's exclusion from planning and implementation was linked to their lack of representation in village administrative and spiritual institutions. Also relevant was the insensitivity to gender division of work (e.g. women were too busy to attend meetings in the afternoons, which is when they are held) and the gendered division of property (men own houses thus domestic connections are less relevant to women). As a result, two important female institutions did not become connected to the grid and today remain without electricity (see Figure 2).

**Figure 2: Map of Uroa village, Zanzibar drawn by the Chairman one year after electrification**




In line with project policy, public services were connected (e.g. school, new hospital, water pump). Also, spaces attended mainly by men (i.e. the mosques and the fish market) received supply. The two highlighted (red) squares indicate female institutions important to women's productive enterprises (i.e. kindergarten and grinding machine). These were not included as targets for electricity supply, despite being close to the grid. Another indication of the influence of local decision-makers in participatory processes, we see the effect of the Chairman having a say as to where to put up streetlights. This line generally follows the main road but at one point it makes a tee-off from a local hotel to a spot marked by a green circular point. This indicates the 150W mercury bulb located outside his private home.

The village mill used by women for grinding maize, grain, etc. previously worked on diesel and so supply could technically have been converted relatively easily. This did not in fact happen, and today the mill has been abandoned. The kindergarten, where older women take care of young children when mothers work, was not connected either and at least until 2006 had still not been connected. In conversations with women after electrification, both these institutions were brought up as relevant targets for electrification, but at the time of the project planning, women's opinions had not been taken into consideration. In contrast, the mosques were immediately connected, and the fish market, which is uniquely attended by men,[18] received electricity for light and a freezer at a later stage.

The selection of targets for electrification today partly stands as a material manifestation of who were and who were not involved in the planning process in the village. Women's concerns were out of sight during the participatory process due to their lack of representation and decision-making power in local institutions, and due to the invisibility of women's economic enterprises. Yet, the picture is more nuanced when we consider women's empowerment and the clear signs of increased gender equality caused by the improvements in public services. There were four levels

[18] Men have the main responsibility for fishing (by boat) and sell their surplus at the village market (daily auctions) where other men come to buy. Women also fish (but not by boat) and the fish and octopus they catch are consumed in the family or exchanged for other types of food within their social network.

of governance involved in the Uroan electrification process: first of all, there was the overall project policy and plans negotiated between the Tanzanian and Norwegian governments, which included an explicit focus on women through the priority of public services (mosques were also identified as a target). Strategies to achieve other identified targets, such as the use of electricity for productive activities or in the domestic sphere, were not specified in terms of gender;[19] secondly, a project committee was established to plan, manage and monitor the process. This body selected the villages to receive electricity. Decisions to deviate from original plans had to be authorised by the committee; thirdly, a project group was set up independently from the Zanzibar energy utility and did the actual implementation. The group was led by a male Norwegian Project Engineer and included staff hired from the utility. New staff were also recruited and had, as mentioned, a pro-active strategy for engaging female surveyors.

Lastly, from a gender perspective at the village level, a crucial step in the process that led to the omission of women's productive interests occurred as the Project Engineer and his group consulted the fourth level of decision-making bodies in the process: the highly active and male-dominated village administration. This group was more concerned about obtaining domestic connections, light in the fish market and in the streets (and ritually protecting the project against an anti-electricity campaign), than about including women in the process. The example of the kindergarten and the grinding mill underscores the need to pay close attention to who has decision-making power to influence a project, which in turn is prone to affect outcomes and the potential for social change. This political aspect at the time of formation is particularly important for energy technologies which tend to be costly, physically heavy, and difficult to modify as they endure for decades. Therefore, a crucial question is what kind of gender goals are identified at the policy and management levels and who gets to represent their interests during implementation. To balance the local process in Uroa, which was bound to become male-dominated given the existing social structure, the Project Engineer could have requested meetings (consultations) with women at times during the day when they would be available, and actively included them in the planning, implementation and operation of electricity in the village.[20] This kind of gender-balancing procedure, and a system for reporting its completion, could also at the policy and management levels have been identified as a standardised requirement, in line with the inclusion of public services.

## 5 HOUSEHOLD CONNECTIONS AND ACQUISITION OF APPLIANCES CONTROLLED BY MEN

When people who had recently obtained an electricity connection in Uroa were asked in 1991 what appliances they would obtain in addition to lights and a radio, men tended to say that they would first want a freezer (for storing fish), then an electric stove (useful to their wives) and thirdly, a television set (information, entertainment). At that time, women were divided in their opinion about electricity. One group said that they wanted an electric stove in order to save time on cooking. The other group expressed a deep fear of electric stoves and said they would never want such an item due to the high risk of health hazards caused by electric shocks. They had heard on the radio that one may die from touching such an appliance in the wrong place.[21]

Keeping men's and women's stated preferences in 1991 in mind, Figure 3 provides an overview of the types of appliances that were kept in Uroan homes a decade later. The most striking

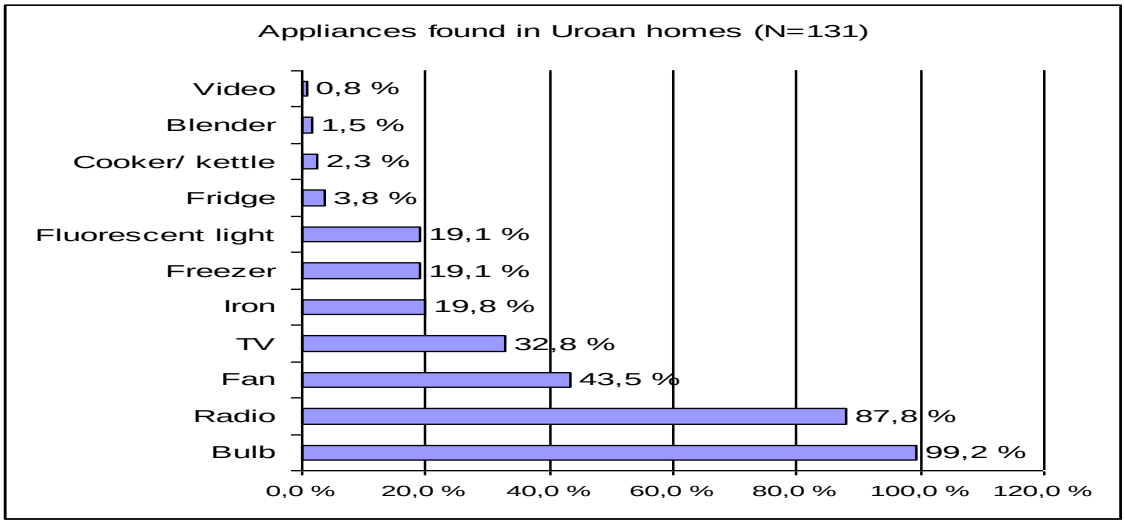
[19] In addition to public services, the project's overall goals were to stimulate economic growth in Zanzibar through the development of local production activities (e.g. irrigation) and the tourist sector in particular. It was also expected that domestic electricity consumption would take off, resulting in a shift towards cooking with electricity in the long term (see Winther, 2008: 52-3 for a discussion of this last stated objective and the suggestion that electric stoves were established more as a result of international environmental discourses than from the perspective of Zanzibari realities).

[20] Local men in Uroa were recruited as staff within the electricity company to monthly read and register electricity consumption.

[21] In our own rented guesthouse in the village, my family and I experienced getting electric shocks approximately once a week. In contrast to how Zanzibaris explained the problem of shocks (that stoves are particularly dangerous and require a particular kind of knowledge on the part of the cook to be safe) my family and I attributed the shocks to poor insulation of cables, poor installation/earth connection, the poor quality of the second-hand appliances, and the humid, salty air which makes metal corrode easily.

differences between people's statements and the types of appliances they had actually acquired include the relatively high number who kept fans (44%), followed by television sets (33%), and the (close to) absence of electric cookers. Freezers were found among 19% of the households. These were not used for storing fish but for cooling sodas and freezing sweet ice for consumption and sale.

***Figure 3: Electrical appliances observed in Uroan homes 2000-01 and the frequency with which they were found among the 131 accessible homes with an electricity connection.[22]***




To understand why Uroans have invested in these particular appliances, a return to the cultural organisation of household finances is clarifying. Recall that possessions and wealth are said to be held by individuals who are also entitled to spend their money as they like. Given women's freed time from collecting water, their opportunities to earn cash from seaweed farming and their expressed interest in electric stoves, which reappeared even more strongly in 2001 (which I explain further below) - why were there then not more than two electric stoves in the village? The cost of a common stove at that time was about 20% of a television set, but in use, electric cookers are known to be expensive. Obviously, they represent a considerable cost compared to the 'free' firewood women collect in the bush (see Nathan and Kelka, 1997; also see Box 2). I suggest that additional, complementary explanations are also relevant.

**Figure 4: A woman collecting firewood from her husband's field of casuarina trees - her husband is standing to the right (Uroa, Zanzibar, 2001).**

[22] Of the 480 households in Uroa in 2001, 159 (33%) were registered as electricity consumers. Of these, 131 were accessible/relevant (the remaining having either been disconnected or they were not at home during the period of fieldwork, between September 2000 and June 2001).

**Box 2: A tree-planting project that ended up empowering a few men, but with the unintended effect of increasing the time most women had to spend on collecting wood**

**In the late 1980s a Finnida tree-planting project encouraged people in a village like Uroa, Zanzibar, to start farming fast-growing trees to meet the perceived, increasing scarcity of firewood. In response to this, individual men who could afford to buy seedlings received the right from village authorities to grow (casuarina) trees on communal land close to the village. This introduced a new situation as normally, people got temporary (five years) permission to farm the land within a traditional system of shifting cultivation. As a result of the privatisation, women started to have to first pass through 'privatised land' where the trees grow before they could start collecting dry branches for firewood, as well as branches from living trees to be used as poles for their seaweed farming.**
**In the 2001 study, it was found that women spent an average of 12 hours per week on collecting wood over three trips (Winther, 2008: 203). This corresponded to the amount of time they had spent a decade earlier, but as they now cooked fewer meals than before, the overall amount of firewood being consumed had been reduced. This extension on the time required for this activity therefore reflected that firewood had become scarcer and that women had to walk further to collect it. This turned out to be an unintended result of the Finnida tree-planting project. The privately grown trees are mainly sold as building material to companies outside the village. Only tree-owning families are entitled to cut and collect some of the trees for firewood, as the woman in the photo in Figure 4 (Winther, 2008).**

With the exception of some radios, all the observed appliances in Uroa had been purchased by men and were owned by them. This is linked to men's ownership to and association with houses, and women's temporary presence. Being fixed extensions of the house, electricity had become a male realm in Zanzibar. This is not a minor responsibility. Electricity's high cost and rapid normalisation (a "*nice house*" should today contain electricity) have raised the stakes for men's entry into marriage. This also puts a certain pressure on poor men not to marry several wives, as it is considered important to treat them all equally, both emotionally and materially (Winther, 2008: 142-3). Men install electricity by paying the high connection fee equivalent to about five months' income for a fisherman (US$200-300). They engage in a difficult customer relationship with the electricity company and they pay the monthly bill for consumption (US$2-3).[23] Here we also touch on a vital characteristic of electricity's organisation (i.e. centralised grid, conventional kWh meters) which contributes to women's limited control of the technologies and selection thereof. Because electrical appliances always consume energy, they represent a cost to the male family provider each time they are used. This technical/financial/gendered feature of electricity constitutes a barrier to female ownership of appliances.

There are culturally informed ideas about what sorts of things women should possess, and these should be investigated when considering women's potential uptake of new technologies. Men are, as seen, associated with houses and more recently, also with electricity and appliances which fit with their role as household providers. Women keep a different set of items. The gifts women receive for their wedding (first marriage) constitute typical categories of a woman's belongings and carry symbolic meaning as to what is expected in terms of a woman's role, responsibility and identity. From her female in-laws she receives clothes, soap and objects of beauty, which signal their adoption of her (and her forthcoming children) into the family line, highlighting a concern for displaying respectability and purity in a wide sense. From her own kinship group, she receives (traditional) kitchen tools and utensils, which underline her new identity as a wife and mother and which equip her practically to fulfil her new responsibilities as a cook by the fire. In addition, the family/father of the bride receives a wedding gift from the groom's family.

Given women's stated interest in electrical appliances such as stoves, we see that this item could in principle be compatible with the category 'kitchen utensils' that women otherwise receive. However, and contrary to what has been observed in Kerala, India (Wilhite, 2008), women in rural

[23] In 2001, there was a minimum bill system where a customer would pay a fixed price up to 50 kWh consumed per month. On average, people paying this tariff used only 25 kWh. The system was not well understood due to the fact that the periods for metering varied from the reference of 30 days, thus sending the 'minimum bill' up and down according to when the meter reader had come to check consumption. In 2004, the minimum bill system had been replaced by a new tariff including a fixed amount and an additional charge per kWh according to consumption.

Zanzibar never receive electrical appliances as wedding gifts. I suggest that this may be partly connected to electricity's organisation and characteristics mentioned above. A wedding is the celebration of a symmetric liaison between two parties (families) and much effort is done throughout the wedding practice to establish a good relationship between them. Causing the groom future costs by providing a bride with an electrical appliance could have disturbed this relationship from the very start.[24]

In combination, existing structures (institutions) together with the organisation of electricity (continuous payment), pose cultural-financial constraints on women's opportunities to influence their investment choices. In addition, there are various opinions in the village as to what a woman may take with her in the case of a divorce. Whereas some refer to each person's right to bring with them what he/she has acquired, others say that the size and weight of the object matters; 'heavy' (*zito*) things should stay in the house when the woman leaves (e.g. freezers and electric stoves). This shows that the general norm for individual ownership is not always considered relevant, which leaves the (hypothetical) issue of long-term female ownership of appliances open for negotiation in real situations. This uncertainty further reduces women's motivation and likeliness for investing in appliances.

Nonetheless, women contribute substantially to financing investment in electricity and appliances. Increasingly, and despite the persistent gender ideology of male providers, they use their income to support their families in everyday life. Husbands from their side, tie up resources in long-lasting items (houses, electricity, appliances). The concern with this pattern is that women face significant long-term financial insecurity. Female income, which could have been invested in enduring assets (e.g. furniture, electric stoves and houses) and productive capital such as sewing machines or an electrified village mill, is instead used for daily consumption.

# 6 ELECTRICITY'S USES

The realm of electricity consumption represents a field in which both genders gain social rewards, information, education and entertainment. At the village level, electricity and improved means of transport have facilitated the establishment of more shops which are run by men. Shops today offer a larger variety and volume of goods. In addition to the lights and refrigerators/freezers installed, shop keepers obtain more customers in the evening by offering the possibility to watch television programmes. The lit space is also said to attract people from non-electrified villages and many claimed that young people now wished to stay in this locality which had become "*like a town*" due to the electric lights. As to the tourist industry, Uroans have only limited access to this market, but some men and women (from one particular family) have jobs in a joint venture hotel in the village. The establishment of this was conditional on access to electricity. Otherwise, apart from the freezer and light used at the fish market, electricity's applications are not used for productive activities. Had the women's mill been connected, this could have been somewhat different.

When appliances are put to use in people's homes, men's ownership to them has relatively few implications. Women spend more time at home than men do, and they frequently and readily administer the use of freezers, lights, televisions and the like.[25] If a woman gains a small profit from selling sweet ice to neighbouring children, she will keep this and regard it as hers. Women also use electric light for sewing and other handicraft work in the evening. Generally, when appliances are in use, people tend not to think about electricity or devices as such. Rather, they are concerned about wider concepts such as cleanliness, comfort and convenience (Shove, 2003;

[24] Wealth tends to be gendered (Weiner, 1976) and the types of items a woman in Zanzibar receives for a wedding carry symbolic meaning by emphasising what is culturally expected in terms of a woman's role, responsibility and identity. When a woman in rural Zanzibar marries for the first time she makes the most significant leap in accumulation of wealth during her life time (see Winther (2005) for a discussion of the genders' distinct 'material life cycles'). After the completion of the wedding the bride brings her items with her and moves into her husband's house where she will cook and stay as long as she is married to him. If he is also married to other women, she will receive and cook for him for two days and then again when he has spent a similar period of time with her co-wife/wives. In the case of divorce, she will take her items with her and leave his house.

[25] Mobile phones were only kept by a few men in Uroa 2001, but in 2006 it was said to be a common item. People's mobile phone practices do not form part of this study.

Wilhite, 2008). Electricity in Zanzibar has contributed to modifying the meaning of all these notions. In the remainder of this section and the final section I focus on modifications of Zanzibaris' uses of space and time, which are issues related to convenience and comfort.

In line with her husband, a woman who can offer television viewing time and freezing capacity gains considerable prestige vis-à-vis other people. Television programmes are associated with the virtue of getting new ideas; "*to move forward*", which is central to the rural Zanzibari notion of development. News was generally the most preferred type of programme.[26] As their second priority, women highlighted Swahili dramas and men preferred sports or music programmes. A proportion of the time women have saved from the improved water supply is therefore used for obtaining more information (e.g. from receiving advice on the benefit of boiling water during the rainy season to watching major world events). The new access to television and the outside world implies increased empowerment for all.

Interestingly, the hosting couple on these occasions displays a more equal position compared to the visiting extended family members and neighbours. One of the major social changes caused by television and electric light in Zanzibar is that the husband "*has come home*". Whereas he used to stay outside with his friends in the evenings, most men in 2001 either stayed at home or went to other people's homes to watch television. Paradoxically this has reduced the amount of time a husband and wife spend alone together, because the spouses' sleeping patterns do not match each other to the same extent as before.[27] A non-articulated (and probably unintended) side effect of domestic electrification is that sexual patterns are changing.

The former separation of men and women in the evenings has been exchanged with a setting where both genders stay in the same, relatively small livingroom at the same time. The spatial organisation notably ensures that women and men visitors are positioned at a distance from each other, thus a microcosmos of gender segregation reappears and ensures that the concern for respectability is maintained. The bright light also contributes to producing transparency and a morally acceptable atmosphere. The hosting couple sit close to each other, and at a spot where they can see the screen and the front door at the same time. This position, and the hostess' right to comment on what goes happens on the television screen, reflect her and her husband's superior status and identities as modern providers of a desired commodity. In this particular context, where the presence of male and female external observers is crucial, the ideology of male supremacy (i.e. men being served first during ceremonies) is played down; and alternative criteria for judging status include the ability to possess, be in control of and offer a modern, attractive commodity. An important condition for interpreting the couple's position in this way was the fact that only 9% of Uroan households possessed a television set at that time. Therefore, the indicated signs of a modified pattern where the former male-female hierarchy has been replaced with a new criterion for judging people's status (modern couple versus non-modern male and female guests) might be temporary and fade away if more people start to keep television sets. Nonetheless, what this example from Uroan livingrooms illustrates is the observation that modern, culturally relevant technologies are generally linked to status. Individuals associated with such technologies may gain considerable prestige and the new social patterns that emerge may challenge former criteria for distinction (e.g. gender hierarchy). Correspondingly, intervention efforts that enhance women's association with new, desirable technologies may be turned into more permanent transformations in gender perceptions and roles (see Standal (2008) for a treatment of women barefoot engineers in Afghanistan and the signs of women having gained increased status vis-à-vis men as a result of their role as solar engineers).

[26] News are produced and presented on Television Zanzibar, the channel controlled by the government. Other channels such as BBC are also available with the use of available antennas, and preferred by opponents of the government.

[27] Husbands are expected to stay up late until the last guest has left or they arrive home later than their wife if she has been outside the house at all. On average, 53% of women said they watched television at least three times a week and 74% of men did the same. On average, they watched for more than two hours on each occasion (Winther, 2008: 97).

# 7 THE (APPARENTLY) CONSERVATIVE NATURE OF COOKING PRACTICES AND PEOPLE'S FOOD PREFERENCES: TIME VERSUS TASTE

Above it was noted that the gendered division of wealth, together with electricity's organisation (or 'script', according to Akrich, 1994), constitute barriers to women's choices and their potential to select and invest in appliances which in turn could be used to serve women's interests (return on capital). I also suggested that these factors, together with the high cost of stoves to purchase and use, account for the fact that only two families kept electric stoves a decade after electricity's introduction. In this section I explore some further dimensions that are relevant for explaining why cooking habits appear reluctant to change in rural Zanzibar.

In principle, households with a connection to electricity face four choices as to what energy sources they may use for cooking food. Firewood is the common fuel. Charcoal, paraffin and electricity constitute available alternatives. Table 1 shows the fuels used in Uroa, as stated in the 2000-01 survey conducted by the anthropologist among both electrified and non-electrified households.[28]

***Table 1: Fuels used for cooking in Uroan homes in 2000-01 (n=114) (Survey Uroa, 2000-01).***

| | |
|---|---|
| Firewood | 96% |
| Charcoal | 8% |
| Paraffin/kerosene | 6% |
| Electricity | 1% |

Table 2 shows to what extent men and women said they had tried to cook with electricity and men's and women's perceptions of electricity's compatibility with various types of dishes, and the danger involved.

***Table 2: Men and women's expressed experiences with and attitudes to electric cooking; the shares of people who were unable to answer/did not know, varied from 1 to 4% (Survey Uroa, 2000-01)***

| | **Men (n=86)** | **Women (n=106)** |
|---|---|---|
| Have tried to cook with electricity | 22% | 35% |
| Think that any dish can be cooked with the use of electricity | 60% | 67% |
| Think that it is more dangerous to cook with electricity compared to firewood | 66% | 89% |

The cheapest type of available electric stoves at the time was the coil type (*ringi* - see Figure 5) [29]. Many respondents probably had this stove in mind. It has important technical limitations in that the heat cannot be regulated and the heating element (coil) is not protected, so any spilling of water would hit the element, which is also easy to


***Figure 5: Woman with electric stove (coil type) observed in Uroa 2001 (unconnected when the photo was taken).***

[28] During the survey work, considerable effort was made to meet and interview both spouses in the selected households. It was particularly challenging to find men at home at a convenient time. Fridays turned out to be a good time to meet men as they did not work after the main prayers at 1pm.

[29] The cost of this coil stove was about 30,000 Tanzanian Shillings in 2001. This represented about one month's income for a fisherman or somebody employed as a house cleaner among tourists; half a month's wages for a teacher; and three months' work for a woman farming seaweed.

touch.[30] The interview context should also be taken into account when considering people's responses.[31]

Table 2 tells us that both men and women had some experience with electric cooking.[32] A large majority, particularly among women, consider this kind of technology as more dangerous than a fire. The safety issue should therefore be looked into when considering the potential uptake of modern cooking technologies (see Box 3).

***Box 3: Precautions made when cooking on the coil stove in rural Zanzibar, 2001***

**During fieldwork in Zanzibar in 2001 the researcher agreed with one of the two families who kept a coil stove, that she could come for a period and observe the housewife cook while paying the electricity bill for the same period. During conversations in advance, the woman listed all the precautions that had to be taken to reduce the risks involved. The cook should wear gloves and rubber sandals, use wooden spoons for stirring, keep the device on a table inside the house instead of working on the earth floor in the semi-open kitchen, and especially keep children away due to the hazards associated with the appliance. When the researcher arrived to watch her cook, the woman had arranged for her younger sister to come, as she was too afraid to use the stove herself. After three days the little project ended. The woman said there was a problem with the electrical outlet.**

Electric stoves (the coil type) are also perceived by some (more men than women) as limiting the kinds of dishes one can make due to its physical characteristics.[33] Moreover, the common clay pot has a curved bottom and its shape and composition are not suited for the flat, hot element, which would make clay crack in any case. This leaves the aluminium vessels as the only available and affordable option to use with electricity. These findings illustrate that one should look at the ways energy provision systems, appliances, utensils and tools together constitute 'socio-technical chains'.[34] By doing this one may come to grasp the potential meaningfulness, usefulness, uptake and adaptation of new elements within such chains.

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[30] For security reasons, the electricity company in 2006 did not recommend this type of stove anymore, but rather the plate type (not kept in Uroa in 2001) which is more expensive. Stoves are purchased in shops or second-hand stores in Zanzibar Town.

[31] These survey responses were given to a visiting (Norwegian) female anthropologist with an expressed interest in electricity (and who had mastered everyday Swahili to a fair extent). Many questions were hypothetical (asking for opinions and attitudes) rather than being concrete, observable or experience-based. In sum, this interview context is likely to have affected people's answers in a way that led them to favour electricity-related choices to a higher extent than what would have been the case in another context. A telling example: when I posed the survey questions to my new neighbour Meja at the beginning of fieldwork in 2000, she was asked the following question (which was only posed to people with access to electricity in order not to induce too much focus on people's poverty and indignity among those without a connection): "*If you had the opportunity, what object would you obtain/buy next?*" Meja said she would like an electric stove. However, when I was about to leave the fieldwork behind and asked this woman with whom I had spent time on a daily basis for nearly a year what she would like as a farewell gift, she said she would very much like a (non-electric) sewing machine. Thus, when faced with a real possibility of obtaining an item she gave priority to the sewing machine. However, it does not mean that the answer given during the survey was meaningless; such statements are also significant but should be interpreted contextually. The possibility to observe reactions and follow up questions for clarifications was an advantage compared to methods that include strictly structured interviews conducted by assistants external to the research project.

[32] Some had tried to cook in this way at relatives' places in town while others had used electric stoves in the guesthouses or hotels in Uroa. My family also kept a stove which some of the respondents had tried.

[33] Dishes which need heating from above and below (e.g. *pilau*, the national dish in Zanzibar), or dishes that need extensive beating (e.g. *ugari*, which is difficult to cook on an unstable stove) were most often mentioned as incompatible with cooking on an electric stove.

[34] By using the notion of socio-technical chains I draw on the Science and Technology and actor-network literature which highlights the intrinsically social nature of technological systems from their invention to their implementation and stabilisation (see e.g. Bijker and Law, 1994). Shove (2003) also points to the significance of the various parts in such systems, or chains, and how they can mutually determine each other and how people ultimately act (e.g. if only frozen food is available in shops, people will tend to purchase a freezer for storing food and a microwave oven for defrosting it).

Given the range of constraints that seem to work against the uptake of electric stoves in rural Zanzibar, it is interesting to note that women tended to evaluate the potential for cooking with electricity quite positively. Sixty-seven percent of them confirmed that they wanted to try to cook with electricity. I primarily interpret such statements as signs of them playing out their modern, female identities in meetings with the Western anthropologist, but this does not make the data irrelevant. People tend to hold multiple identities (see Moore, 1994), and their position/gender as well as the situation (and type of technology involved) influence 'what' they seek to highlight. Men in current Zanzibar demonstrate their modern identities by providing electricity, television viewing time and cold drinks for the family and the extended network. The uptake of these appliances is compatible with and nurtures men's role and identity as providers. A wife is also associated with these appliances. However, the primary practice she (and those around her) attaches to her identity is cooking, and this is a field where men's and women's interests may work in opposite directions. When she considers the thought of cooking with electricity, it is possible that she is therefore playing out a particular version of a modern, female identity and what this could entail.

Women in Uroa are preoccupied with not "*losing time*" (*potea time*). Time-saving was their most commonly stated reason why they said they would want to obtain an electric stove; not only in the cooking itself (they spend 1 hour and 20 minutes on average per meal) but also in not needing to make so many trips to the bush to collect firewood. Here we see the cooks' concern for convenience and management of time. They also referred to electric cooking as "*clean*" (*safi*). They complained about the smoke from the wood fire and problems with their eyes and chests.[35] In contrast, during in-depth interviews about stoves, men would spontaneously bring up the question of taste, and in a passionate way. Men have a clearly articulated preference for the taste of food cooked on the fire.

Women in electrified villages in rural Zanzibar have recently changed their cooking habits in a striking way, and partly due to electricity's arrival. Instead of cooking three meals per day as they used to do before electrification, they now only cook twice a day (still over firewood) and serve leftovers for the family's third meal.[36] This shift is linked with women's concern for generating income and their desire to watch television in the evening. I did not hear men complain about eating leftovers. Life is speeding up with the arrival of electricity. Cooking practices are already changing, as they probably always have, and the new solutions result from intra-household negotiations between individuals (i.e. both males and females) who each have different interests, concerns and roles, who each have a given set of resources which provide them with a certain negotiating power, and who play out their multiple identities in distinct ways.[37] The 'time' and 'taste' duality here captures men's and women's distinct concerns in rural Zanzibar –which could also have relevance elsewhere, but that remains a question to explore.

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[35] Women referred more often to the negative health impacts from fires as they had personally experienced them (e.g. by demonstrating coughing and blinking, often in an exaggerated and humorous way), and not to a general stock of knowledge on the negative health effects caused by smoke. I would expect that health campaigns on the effect of smoke alone would not have a significant impact on people's cooking practices in rural Zanzibar, in producing a shift towards electric stoves. Today the kitchen is located in a semi-open space in the backyard of the house, and the corner in which the fire is placed is often dense with smoke. There is a tendency towards house construction techniques (bricks and cement) and roofs becoming better sealed than before due to the concern for protecting electric installations against rain. However, used in combination with concrete efforts (technical and financial support) to provide people with rain-proof roofs which at the same time ensure better and natural ventilation, increased information (e.g. meetings with men and women on separate occasions) could contribute towards improving women' health (and that of other family members observing her while she cooks).

[36] Another example of changed cooking practices is that women today are increasingly using aluminium pots rather than clay pots because the latter tend to break more easily. This latter change has occurred despite men's expressed preferences for the taste of food cooked in clay pots.

[37] Upon my return to the village in 2004, 12 women (mostly teachers) had taken up loans at the local school and had purchased electrical plates. They said they would only use the plate for boiling purposes and on occasions where they needed to save time and could not collect firewood. One of them told me that she had agreed with her husband to cover half of the monthly electricity bill, and that he would be the one going to the office to pay. In this particular case, we can see how general barriers to women's uptake of new technologies that could serve their interest have been negotiated and overcome, including the couple's shared concern for maintaining the image of a male provider.

# 8 CONCLUSION

Electricity's arrival in rural Zanzibar has meant increased wellbeing for all. Through their access to improved public services, people living in electrified villages have obtained opportunities for better health, more education, more time for other activities than basic household chores; also, because the improved services are located in the village, costs on transport were reduced. The priority of public services was project policy and highly successful from a gender equality perspective. As the main users of these services, women and girls benefited in particular, through their increased accumulation of human capital such as knowledge, education and better health. In addition, the changes in the public sector and the re-allocation of time, have had a positive effect on women's economic opportunities. Given the Islam-ascribed morality that each person may decide how to spend their money, women's increased income in principle implies that they gain more autonomy and potential for acting according to their interests (agency). However, the extent to which women's increased opportunities for productive and income-generating activities result in their accumulating long-lasting wealth (productive capital) is highly uncertain. Due to the gendered distribution of wealth in this context, women have few opportunities and incentives for making lasting investments. This barrier to gender equality is linked with institutions informed by Islam that guide rules of inheritance and divorce. A change in legislation so that women be formally granted equal rights to men would be a first step (but not the last) towards a modification of cultural practices that hinder Zanzibari women in accumulating wealth.

The electrification project in Uroa succeeded in facilitating a genuinely participatory process during implementation, but failed to balance the fact that village management was run by men and ignored women's potential productive interests in the process.

Individuals are also empowered by the new access through television programmes to real and imagined worlds elsewhere. These provide not only information and concrete advice that may or may not be followed, but the access to international channels also introduces a variety of models as to how life can be lived. Over time, this increased intellectual freedom is likely to strengthen the position of groups who are disadvantaged today, such as women and political opponents of the government. Within families, electricity's applications are celebrated and enjoyed. Consumed jointly with the extended family and neighbours who come to watch, we noted a more equal status in the couple who could offer television viewing time. Electricity has social significance in communities where the technology is new and still has a limited distribution. This is why a gender focus in energy interventions has considerable potential to produce increased gender equality at large. I have suggested that the prevailing gender hierarchy in Zanzibar was challenged in these contexts as protagonists were playing out their modern identities. Also, the signs of a new pattern where men marry fewer wives due to the cost of electricity, nurture a nuclear family model and correspondingly modify gender roles. However, although women master appliances in use, their opportunities to decide on what appliances to obtain are limited. Men's ownership of houses together with electricity's pattern of organisation, impede a quick uptake of electric appliances (e.g. stoves) that could have been in the women's interest to adopt.

Women have gained increased flexibility in their time and more economic opportunities with the arrival of electricity; however, men are stuck with the bill and the burden of being family providers. By looking at the economic impact of electricity in the larger context, I have shown that women, through their increasing financial support to the family, contribute indirectly to men's investments in modern energy technologies. Nevertheless, women are hindered in accumulating enduring assets and in planning their finances. They experience a peak in their level of wealth at the time of their first marriage, but gradually, as their labour capacity decreases with higher age, they become poorer and more dependent on other people (their husband, their own kin or their children) for support. Women experience financial and social vulnerability in the long run. Men can at least keep the house and other assets as long as they live. The Zanzibar case can be summarised as follows: electricity has empowered women and enhanced gender equality to a considerable extent. However, more could have been achieved had inheritance and divorce rules been different, had women been included in the village electrification process from the start, had they had the opportunity and ability to make long-term investments, and had they had a greater say in what appliances to select and use at home. In other words, had these factors been fulfilled, women

could have been further empowered in the sense of having greater control over their own lives. As it were, some of them experienced glimpses of increased status during TV evenings, and gained access to virtual realities elsewhere, and to education, which are a major step forward. The majority, however, primarily experienced improvements in drudgery and gained some time in some tasks that were, and continue to be, part of their established gender roles.

Central questions in energy/equality interventions are how to draw on successful experiences elsewhere, how to foresee what could promote increased gender equality, and how to overcome possible barriers. Interventions which do not take gender into account in a comprehensive manner ignore the fact that any development effort is made within a field of existing power relations. Therefore, gender-blind interventions, and particularly those regarding fundamental services like energy, are likely to strengthen gender discriminating structures instead of reducing them. Undoubtedly, insight into the socio-cultural context can help predict some of the likely effects. I have pointed out a few of the significant dimensions to look at: the representation of men and women in decision-making bodies; gender roles as these are perceived and practised; the gendered distribution of wealth and work; and each gender's specific concerns, desires and multiple ways of playing out their identities. By way of combining how people experience and see the world on the one hand, with an overall analysis of the structures/institutions and power relations at work on the other, one may come to understand what kind of energy choices could be provided, and potentially selected by the people in question; this will bring the desired effect of reducing the often found gap in men's and women's opportunities for empowerment.

Without disregarding that gender inequality concerns power relations, there is a potential for a 'win-win' situation where both men and women gain from gender-sensitive energy initiatives. In Zanzibar, men also benefited financially and socially from women's reduced time use on drudgery tasks. Fathers came to have high aspirations for their daughters' future as economically independent persons and gave priority to their education. Fathers here considered their own wellbeing as being connected to their daughters' increased human and social resources and higher status. Female empowerment was nurtured by men who themselves felt socially rewarded in the process. Modern, relevant energy technologies, due to the high status attached to them and also to the individuals with whom they become associated, have an embedded, social, transformatory potential. The extent to which this potential is realised, in terms of increased gender equality and wellbeing for all, depends not only on the shape, cost, meaning and usefulness of devices as perceived by potential users, but also on how such technologies are introduced and made available.

# 9 REFLECTION ON THE ETHNOGRAPHIC METHOD USED

A final reflection concerns the ethnographic method used in this study. The main advantages compared to a conventional survey are perceived to be the following: firstly, the opportunity to compare what people say with what they do provides an opportunity to understand life and its contradictions and tensions as experienced by people themselves. The observation of contradictions may also be particularly revealing for understanding power relations at work (e.g. the persistent idea of males being the providers despite women's increasing contribution to financial support). Thus the ethnographic method strengthens the analytic basis for describing and explaining social life; secondly, long-term presence 'in the field' often implies that relationships are created between informants and researchers. Data collection becomes open and informal, and informants are freer to initiate topics and share what matters to them. One effect of this is that one comes to see the many similar concerns we share as human beings (e.g. safety, wellbeing and social esteem, but also the tension between social expectations and individual desires). This empathic position is valuable when considering, for instance, what it would take to allow for and make women in Zanzibar want to change their cooking technology.

An open approach also enhances the discovery of unexpected phenomena. For example, I would not in advance have thought that the taste of food was as important to men as it turned out to be, or guessed that women's fear of electric cookers was considerable, or that sexual patterns would be changing due to electricity. Thus fieldwork allows for discovering unexpected results. This stands in opposition to surveys where ready-made questionnaires reflect existing hypotheses, limit

flexibility and also imposes notions on people (e.g. 'work'), which may be interpreted in a different way than intended. Here, results may even become erroneous. There is also an ethical issue here. During the work with the survey, I sometimes experienced that particularly deprived people would feel uncomfortable when I asked certain questions on consumption, such as how much money they spent on kerosene per month. I realised that I was making them focus on their own, existing feeling of lack of dignity (Douglas, 1982), which is central to the condition of living in poverty. In contrast, such a situation did not occur in informal meetings where they as often as myself initiated a topic, which led to a dialogue that was meaningful to them. Finally, long-term presence enhances the chance of gaining people's trust, so that they open up and share their concerns, desires and dilemmas. Towards the end of the period in Uroa, I engaged two Zanzibari women from town to help conduct interviews and focus group discussions with some of my female acquaintances. I had not fully mastered Swahili, and wanted to have some important issues covered (on the meaning of light, safety, spirits, etc.). It turned out that my acquaintances (vis-à-vis the strangers from town) hid their thoughts on these points, which we would sometimes talk about when the situation allowed for it. This showed me that long-term fieldwork has its merits in making people reveal issues that would otherwise not have been noted.

# 10 RECOMMENDATIONS BASED ON FINDINGS FROM THE ZANZIBAR CASE

In this section, four main findings distilled from the case study are presented, which feed into policy recommendations on the question of gender equality in electrification projects.

**1. Not paying attention to understanding who has the decision-making power in a project and at the local level diminishes the potential for women's empowerment and may even cause increased gender inequality**

- In introducing electricity to Uroa, women were targeted on the overall national and project policy levels and through the priority of public services and recruitment of women staff, but women's productive and income-generating activities in the domestic sphere were not targeted, and moreover women were not involved at the local level.

- This can best be understood by looking at the power structures in the relations between men and women, as shaped by the socio-cultural context including the formal and informal institutions within which they act.

- *Efforts to promote gender equality* could included consultating local women about their economic enterprises and priorities in advance of implementation and to give women a formal role during implementation and as meter readers in the aftermath. To enhance the strengthening of women's economic enterprises, support to surrounding infrastructure (e.g. housing, grinding mill) could have been provided.

**2. Household connections and uptake of appliances are controlled by men**

- All electric appliances are purchased and owned by men. This technical/financial/gendered feature of electricity (gendered division of wealth together with the organisation of electricity which is continuously paid for after consumption) limits women's ownership of technical appliances, their decision-making power in the uptake of new appliances, and their acquisition of long-term wealth. Women's increasing contribution to domestic consumption caused by men's priority on electricity and appliances may even provide women with less long term financial security than before.

- Again, this can best be understood by looking at the power structures in the relations between men and women, as shaped by the socio-cultural context including the formal and informal institutions within which they act.

- *Efforts to promote gender equality* should address the political level to ensure equal formal rights for men and women. Also, social funds, soft loans and support to surrounding infrastructure (e.g. housing) could be considered to enhance the ability of women and women's groups to invest in and be owners of houses, long-term assets and production means.

***3. The social significance of electricity constitutes a potential for transformation in gender relations***

- Possession and control of new technologies are linked with status and prestige. Differences in people's access to electricity's services cause increased social stratification between villages and between households. New criteria for distinction emerge, which also challenge the former gender hierarchy and open up a potential for transformation of gender relations. Changes in the social patterns between men and women have the effect that women who become associated with appliances that have been purchased by their husbands, obtain a more equal position vis-à-vis men and women external to the household. The modern, nuclear family becomes an ideal which challenges traditional social principles for organisation which include strict gender segregation and the ideology of men's superiority over women. Although the ideal of male provider and female housekeeper is maintained, both perform their roles in a way which reflects that they have a more equal standing than before, and thus a qualitative change in the gender relationship. These dynamics show the potential transformatory power embedded in attractive new technologies.

- These non-articulated and probably unintended side effects of an electricity intervention (i.e. the signs of changed gender relations) can best be understood by using the ethnographic method. Awareness of such possible dynamics may also be used to foresee how enduring empowerment and equality could be achieved.

- *Efforts to promote gender equality* should pay attention to how women could become closely associated with the new, desired technologies. Experiences from solar energy efforts in India and Afghanistan which specifically target women constitute one possible strategy to achieve female associations with new technologies.

***3. The (apparently) conservative nature of cooking practices***

- Men and women have distinct concerns and material and social negotiating power, which constitute a barrier to the uptake of new cooking technologies. Food practices are linked with questions of identity and are loaded with cultural meaning, as expressed in men's stated concern for taste. Women's concerns are linked to identity of a mixed sort (exploring modern identities) and oriented towards time spent, cleanliness and health hazards.

- *Efforts to enhance the uptake of new cooking technologies* should, firstly, look at the ways energy-provision systems, markets, appliances, utensils and tools together with formal institutions, cultural values and social norms (informal institutions) constitute socio-technical chains and a framework for the negotiation of new practices. Secondly, men's and women's distinct concerns, interests and identities should be investigated with the purpose of understanding which cooking practices would be likely to change, for what reasons, and with what effects on whom.

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